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CHRISTENSEN, O'CONNOR, JOHNSON, KINDNESS, PLLC
1420 FIFTH AVENUE
SUITE 2800
SEATTLE, WA 98101-2347

EXAMINER	
JANAKIRAMAN, NITHYA	

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/801,903	RHODES ET AL.	
	Examiner	Art Unit	
	Nithya Janakiraman	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 July 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

This action is in response to the application filed on 7/09/2007. Claims 1-42 are presented for examination.

Response to Arguments-35 U.S.C §112

1. Applicant's arguments with respect to claim 10 have been fully considered and are persuasive. Applicant states:

> Applicants submit that the phrase "pieces of geometry" can be interpreted as a physical, three-dimensional shape of an object/component (or the items that make up the component).

The above reasoning serves to further limit the metes and bounds of the claimed subject matter. The rejection under 35 U.S.C §112, second paragraph of claim 10 has been withdrawn.

Response to Arguments- 35 U.S.C §103

2. Applicant's arguments filed 7/09/2007 have been fully considered but they are not persuasive. Claims 1-10, 13, 15-27 and 31-40 have been rejected under Koenig, in view of Hall. Claims 11, 12, 14, 28-30, 41 and 42 have been rejected under Koenig, in view of Hall, further in view of Hill.

Argument 1:

3. Applicant argues on page 16 that Koenig fails to teach the following limitations of claim 1: obtaining information for each component that includes a starting position, a range of additional positions should the starting portion interfere with another component, and three-dimensional tessellated data of the component for use in determining whether the component interferes with other already-configured components.

4. Koenig teaches obtaining a starting position in column 6, lines 59-61 and Figure 2 *("The beam model analysis **provides the locations** and dimensions **of the various components** for the body-in-white"; this teaching, in conjunction with the iterative process of Figure 2 depicts the obtaining of a position, which would necessarily be a **starting** position, as other positions may be used in the modification process),* a range of additional positions in column 2, lines 42-46, *("...analysis is carried out to **secure locations...for each** of the components of the vehicle"; this teaching shows that more than one location per component, or a range of positions, are obtained following the analysis which would determine if structural performance target are met-in this case if interference occurs, as taught by Hall),* and three-dimensional tessellated data in Figure 3 *(Tessellation is defined as being marked with checks, squares, triangles, or the like, as clearly shown in Figure 3; the depiction of a tessellated representation necessarily implies that three-dimensional data in order to create the tessellated representation had been obtained).* Rejection maintained.

Argument 2:

5. Applicant argues on pages 16 and 17 that Hall fails to disclose the iterative selection and configuration of components to the vehicle frame as required by claim 1.

6. The Examiner was relying on Hall for the teaching of interference detection, as Hall teaches in column 4, line 1, and as Applicant openly admits on page 17, paragraph 1. While Hall's usage of interference detection is required for steps d-f, the Examiner was relying upon Koenig for the teaching of an iterative modeling process, including checking and repeating. As previously discussed, Koenig teaches the reconfiguration of components if the tessellated model does not conform to the structural performance targets (Koenig, Figure 2, **63**, **68**, **70**), which, in

this case is the interference as detected by Hall. This teaching, in conjunction with the interference checking of Hall teaches an iterative design process, which redesigns and modifies a model in order to compensate for component interference. For clarification purposes, the Examiner has revised the rejection of claim 1 in order to more clearly set forth the mapping of limitation rejections. Rejection maintained.

Argument 3:

7. Applicant argues on pages 18 and 19 that Hall does not teach "determining whether the selected component fits with any existing holes on the frame for attaching a component at the current location" and "configuring the selected component to the frame at the position corresponding to a matching hole" as recited in claim 9.

8. As shown in Hall, column 5, lines 5-19, the Hall invention uses what are referred to as "inlet openings", or holes, to allow the ingress of air into the interior chamber of the HVAC unit. Lines 13-15 state, "Preferably, the openings are covered by a door". In conjunction with the interference checking of column 4, line 1, the inlet opening can be covered by a door, which would correspond, or match, with the hole, because there would be no interference. Rejection maintained.

Argument 4:

Applicant argues on page 21 that Hill does not teach the elements of claim 1 that are lacking in regard to the combination of Koenig and Hall. Examiner was not relying upon Hill for the limitations of claim 1, as put forth above. Rejection maintained.

Argument 5:

9. Applicant argues on pages 17-18 that Koenig and Hall, alone and in combination, fail to teach or suggest each element of Claim 1, and that a proper *prima facie* case of obviousness cannot be made with regard to Koenig and Hall. Please see claim rejections as set forth below for a detailed prima facie case of obviousness.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

10. Claims 33-42 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

11. Claim 33 recites "A computer-readable medium having computer-executable modules for generating frame designs for manufacturing a vehicle, the computer-executable modules comprising…" While the claim is directed towards a medium with instructions, the limitations are only directed towards software modules. Giving the claims a broad reasonable interpretation, the claim is broad enough to encompass a software "system" with software components. Claim 33 is therefore held as software *per se*. Claims 34-42 are rejected by virtue of their dependency.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 1-10, 13, 15-27, and 31-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,729,463 Koenig et al. (hereinafter Koenig) in view of US Patent 6,487,525, Hall et al. (hereinafter Hall).

13. Koenig teaches a system for designing a vehicle body using tessellated representations of components and location information (Abstract). However, Koenig fails to teach the detection and avoidance of component interference.

14. Hall teaches the design of a vehicle HVAC air handling assembly, wherein the vehicle takes into account other vehicle systems, and determines a sufficient dimensional distance or clearance between them (see columns 7, 8).

15. Koenig and Hall are analogous art because they are both related to the design of vehicles and/or automotive components.

16. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the interference detection of Hall with the vehicle design system of Koenig, motivated by the desire to "ensure that it is spatially compatible with a particular environment, while still complying with predetermined functional criteria" (see Hall, column 1, lines 31-34).

17. Regarding independent claim 1, Koenig and Hall teach:

A method for generating frame designs for manufacturing a vehicle, the method comprising *(see Koenig, column 1, lines 50-61)*:

(a) obtaining a specification for a plurality of components to be mounted on a frame of a vehicle *(see Hall, column 6, lines 7-15)*,

(b) obtaining processing data corresponding to each of the plurality of components to be mounted on the frame of the vehicle, wherein the processing data for each of the plurality of components includes location information corresponding to a logical starting position for attempting to locate a component on the frame *(Koenig, column 11, lines 38-44: "Figure 13 shows the function and position of the pass-through beam"; this teaching, in conjunction with the iterative process of Figure 2 depicts the inherent obtaining of a position, which would necessarily be a **starting** position, as other positions may be used in the modification process)* and a range of additional positions to locate the component *(Koenig column 16, lines 62-65: "Several other radiator support arrangements could be configured without significant weight gain as required for variations in engine packaging, cooling requirements or styling features"; this teaching shows that a number of positions, or arrangements, are possible in the Koenig invention)* and three-dimensional data corresponding to a tessellated representation of the component *(Koenig: Tessellation is defined as being marked with checks, squares, triangles, or the like, as clearly shown in Figure 3)*;

(c) selecting a component of the plurality of components *(Koenig, column 11, lines 38-44: "Figure 13 shows the function and position of the pass-through beam"; the pass-through beam has been selected)* and setting a current position as the logical starting position in the processing data *(Koenig, column 11, lines 38-44: "Figure 13 shows the function and position of the pass-through beam"; this teaching, in conjunction with the iterative process of Figure 2 depicts the*

inherent obtaining of a position, which would necessarily be a ***starting*** *position, as other positions may be used in the modification process)*;

(d) determining whether the tessellated representation of the selected component located at the current position interferes *(Hall, column 4, lines 1-3 "interference checking")* with the tessellated representation of any other components already configured to the frame *(Koenig: Tessellation is defined as being marked with checks, squares, triangles, or the like, as clearly shown in Figure 3)*;

(e) if an interference occurs *(Hall, column 7, lines 1-9)*, setting a next position in the range of additional positions defined in the processing data as the current position for the selected component and repeating (d) *(Koenig teaches the reconfiguration of components if the model does not conform to the structural performance targets: Figure 2,* ***63****,* ***68****,* ***70****. This teaching, in conjunction with the interference checking of Hall teaches an iterative design process, which redesigns and modifies a model in order to compensate for component interference. In this instance, it would necessarily include choosing the next position to place a component)*;

(f) if no interference occurs *(Hall, column 7, lines 1-9; inherently, Hall can detect if no interference occurs)*, configuring the selected component to the frame at the current position *(Koenig, Figure 2: If the model meets the structural requirements, the model's components are not repositioned, or modified)*;

(g) repeating (d)-(f) for any remaining components of the plurality of components *(It is inherently present in Koenig that the method can be performed more than once for the remaining models)*; and

(h) generating a frame design corresponding to the configured positions for each of the plurality of components *(Koenig, Figure 2, "Final Design")*.

18. Regarding claim 2, Koenig and Hall teach:

The method as recited in claim 1, wherein determining whether the tessellated representation (see Koenig, Figure 7) of the selected component located at the current position interferes with the tessellated representation of any other components already configured to the frame (see Hall, column 7, lines 1-9) includes iteratively comparing whether any tessellated planes within the three-dimensional data of the selected component intersect with any tessellated planes with the three-dimensional data of any components already configured to the frame (see Hall, column 7, lines 32-42).

19. Regarding claim 3, Koenig and Hall teach:

The method as recited in claim 1, wherein determining whether the tessellated representation of the selected component located at the current position interferes with the tessellated representation of any other components already configured to the frame includes determining whether the selected component located at the current position is located within another configured component (see Hall column 7, lines 1-9).

20. Regarding claim 4, Koenig and Hall teach:

The method as recited in claim 1, wherein obtaining a specification for the plurality of components to be mounted on a frame of a vehicle includes obtaining a list of required components from a user interface (see Hall, column 6, lines 7-15).

21. Regarding claim 5, Koenig and Hall teach:

The method as recited in claim 1, wherein the logical starting position corresponds to a dimensional measurement relative to the frame (see Hall, lines 62-67).

22. Regarding claim 6, Koenig and Hall teach:

The method as recited in claim 1, wherein the logical starting position corresponds to a dimensional measurement relative to another component (see Hall, column 8, lines 1-9).

23. Regarding claim 7, Koenig and Hall teach:

The method as recited in claim 1, wherein the range of additional positions to locate the component includes a maximum dimensional measurement in a first direction from the logical starting position (see Hall, column 7, lines 62-67).

24. Regarding claim 8, Koenig and Hall teach:

The method as recited in claim 7, wherein the range of additional positions to locate the component includes a maximum dimensional measurement in a second direction from the logical starting position (see Hall, column 7, lines 62-67).

25. Regarding claim 9, Koenig and Hall teach:

The method as recited in claim 1, wherein prior to configuring the selected component to the frame, the method further comprising:

determining whether the selected component fits with any existing holes on the frame for attaching a component at the current location (see Hall Figure 2, column 7);

if the selected component does fit with any existing holes on the frame for attaching a component, determining whether the tessellated representation of the selected component located at a position corresponding to a matching hole interferes with the tessellated representation of any other components already configured to the frame *(Hall, column 5, lines 5-19, the Hall invention uses what are referred to as "inlet openings" to allow the ingress of air into the interior chamber of the HVAC unit. Lines 13-15 state, "Preferably, the openings are covered by a door". In conjunction with the interference checking of column 4, line 1, the inlet opening can be covered by a door because there would be no interference)*;

if no interference occurs, configuring the selected component to the frame at the position corresponding to a matching hole *(Hall, column 5, lines 5-19, the Hall invention uses what are referred to as "inlet openings" to allow the ingress of air into the interior chamber of the HVAC unit. Lines 13-15 state, "Preferably, the openings are covered by a door". In conjunction with the interference checking of column 4, line 1, the inlet opening can be covered by a door because there would be no interference).*

26. Regarding claim 10, Koenig and Hall teach:

The method as recited in claim 1, wherein each of the plurality of components corresponds to plurality of pieces of geometry (see Koenig, column 2, lines 43-56).

27. Regarding claim 13, Koenig and Hall teach:

The method as recited in claim 1, wherein generating a frame design corresponding to the configured positions for each of the plurality of components includes generating a three-dimensional representation of the frame design (see Koenig, column 2, lines 24-34).

28. Regarding claim 15, Koenig and Hall teach:

A computer-readable medium having computer-executable instructions for performing the method recited in claim 1 (see Koenig, column 2, lines 42-46).

29. Regarding claim 16, Koenig and Hall teach:

A computer system having a processor, a memory and an operating environment, the computer system for performing the method recited in claim 1 (see Koenig, column 2, lines 42-46).

30. Regarding claim 17, Koenig and Hall teach:

A method for generating frame designs for manufacturing a vehicle *(see Koenig, column 1, lines 50-61)*, the method comprising:

(a) obtaining a specification for the plurality of components to be mounted on a frame of a vehicle *(see Hall, column 6, lines 7-15)*,

(b) obtaining processing data corresponding to each of the plurality of components to be mounted on the frame of the vehicle, wherein the processing data for each of the plurality of components includes location information corresponding to a logical starting position for attempting to locate a component on the frame *(Koenig, column 11, lines 38-44: "Figure 13 shows the function and position of the pass-through beam"; this teaching, in conjunction with the iterative process of Figure 2 depicts the inherent obtaining of a position, which would necessarily be a* ***starting*** *position, as other positions may be used in the modification process)* and a range of additional dimensional positions to locate the component *(Koenig column 16, lines 62-65: "Several other radiator support arrangements could be configured without significant weight gain as required for variations in engine packaging, cooling requirements or styling features"; this teaching shows that a number of positions, or arrangements, are possible in the Koenig invention)* and three-dimensional data corresponding to a tessellated representation of the component *(Koenig: Tessellation is defined as being marked with checks, squares, triangles, or the like, as clearly shown in Figure 3)*;

(c) selecting a component of the plurality of components *(Koenig, column 11, lines 38-44: "Figure 13 shows the function and position of the pass-through beam"; the pass-through beam has been selected)* and setting a current position as the starting position in the processing data *(Koenig, column 11, lines 38-44: "Figure 13 shows the function and position of the pass-through beam"; this teaching, in conjunction with the iterative process of Figure 2 depicts the inherent obtaining of a position, which would necessarily be a* ***starting*** *position, as other positions may be used in the modification process)*;

(d) configuring a position for the selected component *(Koenig teaches the reconfiguration of components if the model does not conform to the structural performance targets: Figure 2,* ***63, 68, 70****. This teaching, in conjunction with the interference checking of Hall teaches an iterative design process, which redesigns and modifies a model in order to compensate for component interference)* based upon determining whether a tessellated representation of the selected component interferes *(Hall, column 4, lines 1-3 "interference checking")* with the tessellated representation of any other components already configured to the frame;

(e) repeating (d) for any remaining components of the plurality of components *(It is inherently present in Koenig that the method can be performed more than once for the remaining models)*; and

(f) generating a frame design corresponding to the configured positions for each of the plurality of components *(Koenig, Figure 2, "Final Design")*.

31. Regarding claim 18, Koenig and Hall teach:

The method as recited in claim 17, wherein determining whether a tessellated representation (see Koenig, Figure 7) of the selected component interferes with the tessellated representation of any other components already configured to the frame (see Hall, column 7, lines 1-9) includes iteratively comparing whether any tessellated planes within the three-dimensional data of the selected component intersect with any tessellated planes with the three-dimensional data of any components already configured to the frame (see Hall, column 7, lines 32-42).

32. Regarding claim 19, Koenig and Hall teach:

The method as recited in claim 17, wherein determining whether the tessellated representation of the selected component located at the current position interferes with the tessellated representation of any other components already configured to the frame includes determining whether the selected component located at the current position is located within another configured component (see Hall column 7, lines 1-9).

33. Regarding claim 20, Koenig and Hall teach:

The method as recited in claim 17, wherein obtaining a specification for the plurality of components to be mounted on a frame of a vehicle includes obtaining a list of required components from a user interface (see Hall, column 6, lines 7-15).

34. Regarding claim 21, Koenig and Hall teach:

The method as recited in claim 17, wherein the logical starting position corresponds to a dimensional measurement relative to the frame (see Hall, lines 62-67).

35. Regarding claim 22, Koenig and Hall teach:

The method as recited in claim 17, wherein the logical starting position corresponds to a dimensional measurement relative to another component (see Hall, column 8, lines 1-9).

36. Regarding claim 23, Koenig and Hall teach:

The method as recited in claim 17, wherein the range of additional positions to locate the component includes a maximum dimensional measurement in a first direction from the logical starting position (see Hall, column 7, lines 62-67).

37. Regarding claim 24, Koenig and Hall teach:

The method as recited in claim 23, wherein the range of additional positions to locate the component includes a maximum dimensional measurement in a second direction from the logical starting position (see Hall, column 7, lines 62-67).

38. Regarding claim 25, Koenig and Hall teach:

The method as recited in claim 17, further comprising configuring a new position for the selected component based upon determining whether the selected component fits with any existing holes on the frame for attaching a component (see Hall Figure 2, column 7).

39. Regarding claim 26, Koenig and Hall teach:

The method as recited in claim 25, wherein configuring a new position for the selected component based upon determining whether the selected component fits with any existing holes on the frame for attaching a component includes:

determining whether the selected component fits with any existing holes on the frame for attaching a component at the previously configured position (see Hall Figure 2, column 7);

if the selected component fits with any existing holes on the frame for attaching a component, determining whether the tessellated representation of the selected component located at a

position corresponding to a matching hole interferes with the tessellated representation of any other components already configured to the frame *(Hall, column 5, lines 5-19, the Hall invention uses what are referred to as "inlet openings" to allow the ingress of air into the interior chamber of the HVAC unit. Lines 13-15 state, "Preferably, the openings are covered by a door". In conjunction with the interference checking of column 4, line 1, the inlet opening can be covered by a door because there would be no interference)*;

if no interference occurs, configuring the position of the component as the position corresponding to a matching hole *(Hall, column 5, lines 5-19, the Hall invention uses what are referred to as "inlet openings" to allow the ingress of air into the interior chamber of the HVAC unit. Lines 13-15 state, "Preferably, the openings are covered by a door". In conjunction with the interference checking of column 4, line 1, the inlet opening can be covered by a door because there would be no interference).*

40. Regarding claim 27, Koenig and Hall teach:

The method as recited in claim 17, wherein generating a frame design corresponding to the configured positions for each of the plurality of components includes generating a three-dimensional representation of the frame design (see Koenig, column 2, lines 24-34).

41. Regarding claim 31, Koenig and Hall teach:

A computer-readable medium having computer-executable instructions for performing the method recited in claim 17 (see Koenig, column 2, lines 42-46).

42. Regarding claim 32, Koenig and Hall teach:

A computer system having a processor, a memory and an operating environment, the computer system for performing the method recited in claim 17 (see Koenig, column 2, lines 42-46).

43. Regarding claim 33, Koenig and Hall teach:

A computer-readable medium having computer-executable modules for generating frame designs for manufacturing a vehicle *(see Koenig, column 1, lines 50-61)*, the computer-executable modules comprising:

an interface module for obtaining a specification for the plurality of components to be mounted on a frame of a vehicle and for transmitting a frame design corresponding to a configuration of the components mounted on the frame of the vehicle *(see Hall, column 6, lines 7-15)*;

a processing data module for storing processing data corresponding to each of the plurality of components to be mounted on the frame of the vehicle, wherein the processing data includes location information corresponding to a logical starting position for attempting to locate a component on the frame *(Koenig, column 11, lines 38-44: "Figure 13 shows the function and position of the pass-through beam"; this teaching, in conjunction with the iterative process of Figure 2 depicts the inherent obtaining of a position, which would necessarily be a* ***starting*** *position, as other positions may be used in the modification process)* and a range of additional positions to locate the component *(Koenig column 16, lines 62-65: "Several other radiator support arrangements could be configured without significant weight gain as required for variations in engine packaging, cooling requirements or styling features"; this teaching shows that a number of positions, or arrangements, are possible in the Koenig invention)* and three-

dimensional data corresponding to a tessellated representation of the component *(Koenig: Tessellation is defined as being marked with checks, squares, triangles, or the like, as clearly shown in Figure 3)*; and

a configuration module for configuring a location for a selected component of the plurality of components to be mounted on a frame of a vehicle based upon an interference check *(see Hall, column 4, lines 1-3, "interference check")* corresponding to comparison of a tessellated representation of the selected component interferes with the tessellated representation of any other components already configured to the frame *(Koenig teaches the reconfiguration of components if the model does not conform to the structural performance targets: Figure 2, **63**, **68**, **70**. This teaching, in conjunction with the interference checking of Hall teaches an iterative design process, which redesigns and modifies a model in order to compensate for component interference)*.

44. Regarding claim 34, Koenig and Hall teach:

The computer-readable medium as recited in claim 33, wherein the interference check includes iteratively comparing whether any tessellated planes within the three-dimensional data of the selected component intersect with any tessellated planes with the three-dimensional data of any components already configured to the frame (see Hall, column 7, lines 1-9; Hall, column 7, lines 32-42).

45. Regarding claim 35, Koenig and Hall teach:

The computer-readable medium as recited in claim 33, wherein the logical starting position corresponds to a dimensional measurement relative to the frame (see Hall, lines 62-67).

46. Regarding claim 36, Koenig and Hall teach:

The computer-readable medium as recited in claim 33, wherein the logical starting position corresponds to a dimensional measurement relative to another component (see Hall, column 8, lines 1-9).

47. Regarding claim 37, Koenig and Hall teach:

The computer-readable medium as recited in claim 33, wherein the range of additional positions to locate the component includes a maximum dimensional measurement in a first direction from the logical starting position (see Hall, column 7, lines 62-67).

48. Regarding claim 38, Koenig and Hall teach:

The computer-readable medium as recited in claim 37, wherein the range of additional positions to locate the component includes a maximum dimensional measurement in a second direction from the logical starting position (see Hall, column 7, lines 62-67).

49. Regarding claim 39, Koenig and Hall teach:

The computer-readable medium as recited in claim 33, wherein the configuration module is further operable for configuring a new position for the selected component based upon

determining whether the selected component fits with any existing holes on the frame for attaching a component (see Hall Figure 2, column 7).

50. Regarding claim 40, Koenig and Hall teach:

The computer-readable medium as recited in claim 39, wherein configuring a new position for the selected component based upon determining whether the selected component fits with any existing holes on the frame for attaching a component includes:

determining whether the selected component fits with any existing holes on the frame for attaching a component at the previously configured position (see Hall Figure 2, column 7);

if the selected component fits with any existing holes on the frame for attaching a component, determining whether the tessellated representation of the selected component located at a position corresponding to a matching hole interferes with the tessellated representation of any other components already configured to the frame *(Hall, column 5, lines 5-19, the Hall invention uses what are referred to as "inlet openings" to allow the ingress of air into the interior chamber of the HVAC unit. Lines 13-15 state, "Preferably, the openings are covered by a door". In conjunction with the interference checking of column 4, line 1, the inlet opening can be covered by a door because there would be no interference)*;

if no interference occurs, configuring the position of the component as the position corresponding to a matching hole *(Hall, column 5, lines 5-19, the Hall invention uses what are referred to as "inlet openings" to allow the ingress of air into the interior chamber of the HVAC unit. Lines 13-15 state, "Preferably, the openings are covered by a door". In conjunction with*

the interference checking of column 4, line 1, the inlet opening can be covered by a door because there would be no interference).

51. Claims 11, 12, 14, 28-30, 41, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,729,463 Koenig et al. (hereinafter Koenig) in view of US Patent 6,487,525, Hall et al. (hereinafter Hall), further in view of US Patent 6,453,209, Hill et al. (hereinafter Hill)

52. Koenig and Hall teach a system for designing a vehicle body using tessellated representations of components and location information (see column 1). However, Koenig and Hall fail to teach traversing a tree structure to select the next course of action, or the usage of generating a text file.

53. Hill teaches method for the design and manufacturing of vehicles using process data structures (see Hill, column 1, lines 43-49) and textual descriptions of instructions (see Hill, column 4, lines 32-35).

54. Koenig and Hill are analogous art because they are both related to the design of vehicles and/or automotive components.

55. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the system for designing a vehicle body of Koenig and Hall with the data structures and text files of Hill motivated by the desire to "indicate the assembly steps…contained within the manufacturing data structure" (see column 1), and to "provide specific instructions for personnel" (see column 4).

56. Regarding claim 11, Koenig, Hall, and Hill teach:

The method as recited in claim 1, wherein obtaining processing data corresponding to plurality of components includes traversing a tree structure to select a set of processing data (see Hill, Figure 3).

57. Regarding claim 12, Koenig, Hall, and Hill teach:

The method as recited in claim 11, wherein the tree structure includes two or more sets of processing data for a selected component and wherein setting a next position in the range of additional positions defined in the processing data includes selecting a new set of processing data and obtaining a next position (see Hill, column 1, lines 43-49).

58. Regarding claim 14, Koenig, Hall, and Hill teach:

The method as recited in claim 1, wherein generating a frame design corresponding to the configured positions for each of the plurality of components includes generating a textual file of the frame design (see Hill, column 4, lines 32-35).

59. Regarding claim 28, Koenig, Hall, and Hill teach:

The method as recited in claim 17, wherein generating a frame design corresponding to the configured positions for each of the plurality of components includes generating a textual file of the frame design (see Hill, column 4, lines 32-35).

60. Regarding claim 29, Koenig, Hall, and Hill teach:

The method as recited in claim 17, wherein obtaining processing data corresponding to plurality of components includes traversing a tree structure to select a set of processing data (see Hill, Figure 3).

61. Regarding claim 30, Koenig, Hall, and Hill teach:

The method as recited in claim 29, wherein the tree structure includes two or more sets of processing data for a selected component and wherein setting a next position in the range of additional positions defined in the processing data includes selecting a new set of processing data and obtaining a next position (see Hill, column 1, lines 43-49).

62. Regarding claim 41, Koenig, Hall, and Hill teach:

The computer-readable medium as recited in claim 33, wherein the processing module selects the processing data by traversing a tree structure (see Hill, Figure 3).

63. Regarding claim 42, Koenig, Hall, and Hill teach:

The computer-readable medium as recited in claim 41, wherein the tree structure includes two or more set of processing data for a selected component and wherein the configuration module selects a next position in the range of additional positions defined in the processing data by selecting a new set of processing data from the processing module and obtaining a next position for the component from the new set of processing data (see Hill, column 1, lines 3-49).

Conclusion

64. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nithya Janakiraman whose telephone number is 571-270-1003. The examiner can normally be reached on Monday-Thursday, 8:00am-5:00pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on (571)272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nithya Janakiraman
Art Unit 2123
September 25, 2007

NJ

PAUL RODRIGUEZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100